SCHOOL OF ECONOMICS & MANAGEMENT LISBON

MASTER IN ACTUARIAL SCIENCE

FINAL WORK

LIFE INSURANCE AND PUBLIC AND PRIVATE PENSION: A SURVEY ACROSS SOME COUNTRIES

Bhim Prasad Paudel

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ABSTRACT

Life insurance and Pension systems are complex issues and comparing them across countries is therefore difficult. In practice, they are greatly affected by economic growth, wage growth and inflation, and these vary from country to country.

With this project we mainly intend to bring worldwide overview of features of the public Pension systems, with additional information on private pension and savings arrangements. Information on the age at which pensions can be accessed, the eligibility requirements, the benefit amounts, the contribution rates, the technical methods, and the nature of government's financial involvement are other important features to be searched for in this survey. Related information concerning Life insurance products will also be searched.

Particular attention will be given to a few selected countries, chosen according to how paradigmatic they are, or their significance to this study. To finalize, a look into the nowadays very important problem of public Pension systems reform around the world. .

Keywords: Life insurance; public and private pensions; market trends; Pension reforms

SEGUROS DE VIDA E PENSÕES PÚBLICAS E PRIVADAS:

UM *SURVEY* POR ALGUNS PAÍSES

Bhim Prasad Paudel

ORIENTADOR: ONOFRE ALVES SIMÕES

MESTRADO EM: CIÊNCIAS ATUARIAIS

RESUMO

O estudo e comparação do desenvolvimento do setor dos seguros de vida e dos sistemas de pensões em diferentes países é um empreendimento de certa forma ambicioso, dada a complexidade das realidades em causa. Na prática, são quadros sujeitos a múltiplas influências, sobretudo o crescimento económico, o crescimento dos salários e a inflação, fatores que variam de país para país.

Apesar disso, o objetivo principal deste trabalho é precisamente proporcionar uma visão tão global quanto possível de tais realidades. Para esse efeito, e de algum modo na esteira dos trabalhos de Whitehouse, se analisarão os sistemas públicos de pensões, compilando dados relativos às idades normais de reforma, aos critérios de elegibilidade, aos montantes dos benefícios, ao esforço contributivo e à participação dos Estados no financiamento dos sistemas. Esta informação será complementada com elementos adicionais relativos às iniciativas particulares de poupança, nomeadamente a participação em planos privados de pensões e a aquisição de seguros de vida. Particular destaque será dado a alguns países, considerados paradigmáticos ou especialmente relevantes para o estudo. O importante problema da reforma nos sistemas públicos de pensões será aflorado no final.

Palavras-chave: seguros de vida; sistemas de pensões públicos e privados; tendências do mercado; reformas nas pensões

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1. INTRODUCTION

Because of their importance to most people the subject of pensions has long been a subject of research, as our list of references proves. In a particular way, the works by Whitehouse (Whitehouse ER (2006, 2007 and 2010), Chomik R and Whitehouse ER (2010), Antolin P et al. (2011) and Pallares-Miralles et al. (2012)) give very useful insights on the matter. Another important issue in a way related with pensions is the Life insurance business (Swiss Re (2012)).

Since the eighties of the last century, two main trends are visible with respect to Life insurance and pensions: Life insurance business has grown rapidly, but the most industrialized countries have experienced problems in financing their pension systems. Ageing of the populations, economic slowdown and financial crisis, and political pre-commitments were at the root of these problems.

The period from 2008 to 2012 was marked by both a historically high incidence of natural disasters and the ongoing financial and economic crisis. The demand for Life insurance products was affected by a number of factors, including the low-yield environment that reduced their attractiveness and strong competition from the banks. At the same time, impact of the severe trend in demographic ageing is another big challenge. Setbacks in economic growth, public budgets, financial stability and employment have made it more urgent to adjust retirement practices, to endeavor pension reforms and to strengthen the rules, in order to improve the insurance companies' credibility.

In recent years, pension reforms became a hot topic in pension world and many studies (Campos MM and Pereira MC (2008), Grech AG 2012, etc.) have been developed to understand its effects. One of the most important elements of many recent pension reform proposals has been an increased role for privately managed complementary pension arrangements (Pallares-Miralles M et al. (2012)). The main objective introducing such arrangements is to increase the level of funding for future pension liabilities and it has grown significantly in the past two decades, helping countries to trim down unsustainable "Pay As You Go" (PAYG) benefits.

In view of all these aspects, we seek to develop an international updated comparative study of both Life insurance and public pension systems. We also try to focus on private pension systems. Individual country profiles providing detailed information on each country's Life insurance business and private and public pension system are included as well. Because of constraints on the work length and style, only six countries (from different continents, to give a representatative outlook) were selected.

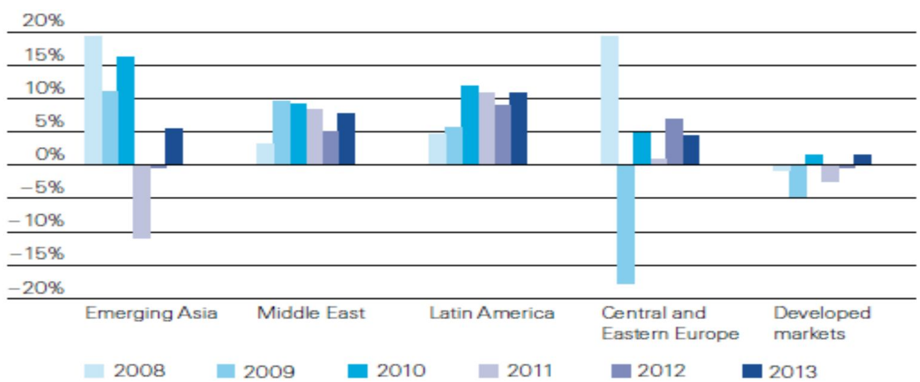
The text has the following structure: this introductory chapter ends with some basic definitions. In Chapter 2, we give an overview of recent evolution and anticipated future trend of pension and Life insurance business around the world. In Chapter 3, we focus on six particular countries in three continents: Chile, Brazil, Portugal, Spain, India and Nepal; the selection of the countries was determined by criteria such as personal interest or their exemplary features (Canada and the USA were initially included but the referred constraints forced their exclusion). The attempted description of the six profiles in question was completed with a comparison between countries from the same continent. In Chapter 4, one of the most challlenging issues of our time, the pension reforms, is briefly dealt with. We end with the most significant conclusions.

2. LIFE INSURANCE AND PENSION SYSTEMS[1]

2.1. Life insurance business around the world

According to OECD (2012b), the positive real premium growth of Life insurance business observed in 2010 sharply reversed in many countries, with premiums declining substantially in some of them during the following years. The most important factor behind this was the macroeconomic environment. In some countries, competition from the banking sector and the low yield environment also curbed the demand for Life insurance. Life insurers have responded by improving investment and asset liability management, reducing operational costs, adjusting policyholder bonus and crediting rates, as well as improving technical profitability through improved underwriting.

FIGURE 1: REAL PREMIUM GROWTH RATE FOR LIFE INSURANCE BY REGION, 2008 TO 2013* (* FORECASTED)



Source: Swiss Re (2012)

Growth in emerging markets has been the driving force behind economic recovery, but global Life insurance premium growth decelerated somewhat in 2011, with the most noticeable slowdowns in the Chinese and Indian markets. In 2011, premiums in Emerging Asia declined by more than 10.9% in both China and India as a result of the introduction of new regulations governing bancassurance sales in China and unit-linked insurance product distribution in India. In India, other various regulatory changes are in motion to tackle existing issues in the sector, such as mis-selling and low transparency.

[1] The definations for life insurance and pension systems are in Appendix 1.1.

In some of the euro zone countries, dramatic declines in life premiums were experienced. The decline in 2011 was above 40% in Portugal, above 30% in Finland, above 20% in Italy and above or close to 10% in Austria, Estonia, France and Ireland.

In emerging markets, premium income increased by 2.3%. Growth was strongest in the Middle East and in Latin America, moderate in Central and Eastern Europe, followed by Africa with an increase of around 3.2%. In South Africa, growth is explained by a combination of inflationary increases on premiums and contributions by Pension funds. In Latin America, growth is expected to remain robust as the two biggest markets, Brazil and Mexico, posted solid growth rates, as did Colombia and Chile. In Mexico, premium growth continued due to growth arising mainly in Life insurance products with a savings component.

In advanced markets, premium income declined by 0.4% (after inflation). Premiums fell by about 1.9% in North America, 5% in Western Europe, and 4.4% in Oceania. The only advanced markets with strong growth were in Asia: Japan, Hong Kong, Singapore, Korea, and Taiwan. In Japan, the growth of Life insurance premiums increased further due to increases in sales of deposit-type products.

For 2013, the global Life insurance growth is expected to accelerate and premium income will grow by 2.2% (after inflation) and then increase up to slightly above 3% in 2014. In advanced markets, 1.5% and 2.5% growth is expected in 2013 and 2014, respectively. In emerging markets, growth of 6% is expected.

2.2. Pension systems around the world

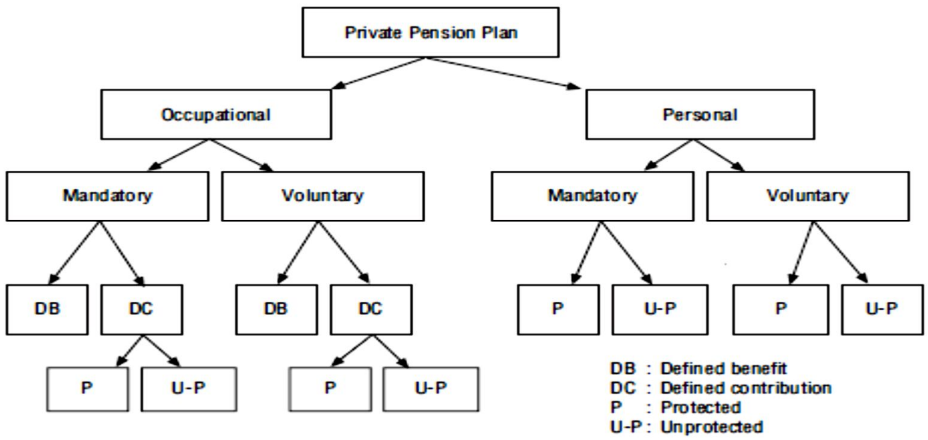
2.2.1. Privately managed Pension systems around the world[2]

There is a large variety of pension arrangements across countries. For example, pension provision through privately managed pension plans could be mandatory or voluntary, pension plans could be linked by an employment relationship, making them occupational pension plans, or be personal plans. Moreover, pension provision could be organized through DC or DB arrangements. Most of DB systems are financed on a PAYG or partially funded basis and are

[2] Pension pillars design and worldwide implementation are in Appendix 1.2.

publicly administered. DC systems are fully funded, and mostly privately managed, although there is a number of national provident funds (in Asia and Africa) that can be most accurately characterized as publicly managed DC schemes. A provident fund is a retirement plan for the private and public sectors, intended to help employees save a portion of their salary in the event of retirement, disability, sickness or unemployment.

FIGURE 2: PRIVATE PENSION CLASSIFICATION TREE



Source: OECD (2005)

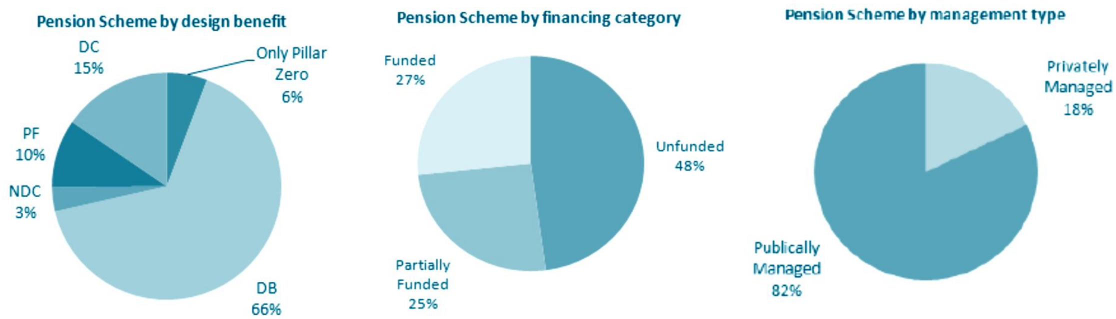
Occupational pension plans are dominant in Western Europe, North America, Asia-Pacific countries and Brazil. These plans are voluntary in the United Kingdom and the United States, mandatory in Australia and quasi-mandatory (*i.e.* most workers are enrolled as a result of employment agreements between unions and employers) in the Netherlands. Latin American and Central and Eastern European countries rely mainly on mandatory personal pension plans.

Occupational pension plans in OECD countries have traditionally been structured as DB plans, but in recent years there has been a shift from DB to DC plans, in particular in the UK and in the US. In these countries companies have closed or frozen their DB plans, or have transferred them to DC plans. In contrast, occupational pension plans in the Netherlands and Sweden have mainly preserved their DB character in recent years by introducing only some DC features in their mainly DB plans. Occupational plans in Hong Kong and Australia offer mainly DC plans.

2.2.2. Pension model and Pension system design

According to SSA publication by Jankowski J et al. (2012), around 65% of all mandatory national Pension systems worldwide are DB systems, mostly still financed on a PAYG basis. More than 70% of all mandatory national Pension systems are publicly-manage. This and other important information is in Figure 3.

FIGURE 3: PENSION SCHEMES BY BENEFIT DESIGN, FINANCING CATEGORY AND MANAGEMENT TYPE



Source: Hinz et al. (2013)

Among the 192 countries for which data could be collected about 80% have first pillars. Some of them have also zero and/or second pillars. Some countries have only zero pillars and a few others only 2nd pillars. As shown in Appendix 1.3 Table 1, there are more than 80 countries that currently have a zero pillar. Many countries have been moving towards multi pillar Pension systems. During the 2000s the greatest focus on new developments has been shifting to zero and third pillars (DC voluntary pensions).

There are separate pension schemes for civil servants in about half of the world's countries. There has also been an increasing tendency towards integrating Pension systems (special schemes with national schemes). Civil servants and other public sector employees – in the military, the education sector, and publicly owned enterprises – were typically among the first groups of workers to be covered by government-sponsored pension schemes. There are a few countries where civil servants schemes (and/or other special schemes) are the only or the main scheme. These include Cambodia, Lebanon, West Bank and Gaza, Ethiopia, and Bhutan.

2.2.3. Regional patterns of Pension system design

Almost all the countries in **East Asia & Pacific** have a first pillar, some have DB and PAYG, and others have Provident Funds - PF. Mongolia has an NDC system and only Hong Kong has a second pillar. Cambodia and Timor-Leste are the only two countries in the region without a first or second pillar for private sector workers. And almost half of them have zero pillars.

In **Europe & Central Asia**, almost all countries have a first pillar. Also, nearly half of the countries introduced a second pillar. Kazakhstan and Kosovo introduced a shift to a large funded pillar, and have moved the public pillar to a basic zero pillar using means-tested programs to cope with the risks of poverty in old age/disability. Another approach has been to recharacterize the ongoing PAYG promise in terms of what occurs in a funded DC account by introducing a NDC scheme. Latvia, Poland and Russia followed the NDC approach, including a funded DC component. More than half of the countries have zero pillars.

In **Latin America & the Caribbean**, structural reforms began with the move to a funded plan of mandatory individual retirement accounts (second pillar) in Chile in 1981 and it includes ten countries now (Pallares-Miralles M et al. (2012)). The most extensive coverage of pillar zero is found in Brazil, which opted to provide all rural workers with a pension equivalent to 100% of the national minimum wage, and in Chile, following the expansion of its means-tested pension to the bottom three quintiles in the income distribution, after a reform in 2008. In most countries, the system for private sector workers and civil servants is integrated. Mexico is joining federal civil servants into the national system, and Colombia amd Argentina have integrated some of their pension plans. Most countries have zero pillars as means-tested schemes.

In **Middle East & North Africa**, almost all countries have a first pillar. Egypt has also NDC and DC (second pillar) but they are not implemented in practice. Mandatory pension schemes in Lebanon, and West Bank and Gaza only cover civil servants and the military. There is also a tendency to integrate separated schenes. Only Malta, Egypt, Iran, and Libya have zero pillars.

In **South Asia**, after independence, influenced by 'universal' pension coverage in the industrial world, India, Nepal, Pakistan, and Sri Lanka introduced laws requiring private employees to participate in a retirement scheme. The resulting plans were generally structured as DC schemes (provident funds). Pakistan's mandatory national scheme relies on a DB structure, while India introduced a DB scheme to complement the existing provident fund. In all countries civil servants are covered by a special scheme.

Four of the eight countries in the region have a zero pillar. Bangladesh, India, and Nepal have means-tested programs, while the Maldives pays basic pension benefits to all residents aged 65 and above. In 1995 Nepal introduced an Old Age Allowance (OAA) scheme, a universal tax-financed pension program paid to all citizens aged 70 or older. The eligibility age was recently reduced to 65. India operated a means-tested cash transfer scheme for the elderly and widows since 1995. Bangladesh also has a means-teased program that provides an old age benefit from age 57.

In **Sub-Saharan Africa**, civil service pension schemes were established in most countries after independence. With the exception of occupational schemes in Namibia, South Africa, and Kenya, pensions are largely unfunded. This is clearly the case for the civil service schemes; but is also true for the partially funded DB schemes that cover the relatively small proportion of the private sector labor force that participates in the formal sector. At least eight countries in the region have some type of zero pillars. In Botswana, Lesotho, Mauritius, Namibia, and the Seychelles, basic pensions are paid to all residents above a certain age; in Cape Verde, Liberia, South Africa, and Swaziland there are means-tested pensions for the elderly.

In **high Income OECD Countries**, almost all countries have first pillars, and most of the mandatory earnings-related pension schemes in this group of countries are DB and PAYG. Only Australia, Norway, and Sweden have second pillars. Italy and Sweden have NDC systems, and Germany and Norway have points systems[3]. Also, around half of the countries have a separated scheme for civil servants and other special schemes, although there is a tendency to integration. Some countries (Portugal, Australia, UK) are gradually integrating their Pension systems, towards a single national system. Almost all countries have zero pillars of some type, targeted or basic. Canada, Denmark, Iceland, and the UK have both, targeted and basic zero pillars. New Zealand is the only country with just a basic Pension system (does not have pillars 1 and 2).

[3] Everyone paying tax and payroll tax on the country will receive pension points.

3. SIX SELECTED COUNTRIES

3.1. Chile

3.1.1. Life insurance

The Chilean insurance market is mature, highly competitive and regulated. The Life insurance segment is dominated by the biggest industry MetLife (16.4%) (Intelligent Insurer (2012)).

Whith the economic crisis Chile's GDP fell by 1.7% in 2009, but the recovery was quick with growth reaching 5.2% in 2010 (Fundación Mapfre (2011)). Overall, the impact of the crisis on the insurance market was relatively mild. In 2010, the total volume of Chilean Life insurance business was about 3752 m. euros (60.5% of total insurance).

FIGURE 4: CHILEAN INSURANCE PENETRATION (PREMIUM AS A % OF GDP)

Source: Hawthorne S (2011)

The 2010 earthquake led to huge losses. And such kind of catastrophe exposure is one of the main drivers of its continued high Life insurance premium rates. In total, Life insurance companies made payments of 885.8 million euros in compensation (Conosur Seguros (2013)). However, the Life market achieved a strong uplift, about 35.3%, in premiums during the same year.

3.1.2. Pension system

Between 1988 and 2008, the successful Chilean pension reform was attempted by twenty-nine other countries (Holzmann R 2012). The PAYG scheme was replaced by an individual capitalization scheme in 1980. This system is managed by private entities called *Administradoras de Fondos de Pensiones* (AFP). The new reform in 2008 maintains the AFP system as the key component of the Pension system, but introduces a number of measures to improve the coverage of the poverty prevention pillar, increase the density of contributions, improve gender equality in the Pension system, increase the competitive intensity of the AFPs and make more flexible the investment regime that regulates them. The Chilean Pension system has three pillars: a solidarity pillar (poverty prevention), a mandatory and a voluntary pillar.

The Poverty Prevention Pillar: The single nationwide scheme that guarantees all individuals from the poorest 60% of the population will have access to a basic pension, regardless of their past contributions. Individuals not entitled to a pension from a Pension system shall be entitled to a Basic Solidarity Pension (PBS) once they turn 65 years old.

Mandatory Contribution Pillar: The mandatory contribution pillar is a specific contribution scheme managed by single-purpose private companies. It is a contributory system based on individual capitalization and there is a direct relationship between an individual's past contributions frequency, date and amount and the benefits these contributions entail. Pensions are lower when individuals undergo long periods of time without making contributions, when individuals have joined the system at an older age, or when they make contributions that do not correspond to their real income (due to the maximum contribution limit). In 2008 contributions became mandatory for self-employed workers.

Voluntary Pillar: Workers may choose from among a broad variety of capital market institutions and financial instruments to manage the funds corresponding to their voluntary contributions and agreed deposits.

The number of funded pensions paid in 2011 was 887 255: two-thirds of which were old-age pensions; about half of old-age pensions received a complement from the government. The average pension was 255.74 euros a month (about 27.57% of GDP per capita). The voluntary pillar includes several saving mechanisms: Voluntary Savings Accounts (1987), Voluntary Pension Savings (2002), and Collective Voluntary Pension Savings (2008). As of June 2011, the number of voluntary accounts was 927,558 with total assets of 5.07 billion euros. The Collective Voluntary Pension Savings is a new pension saving scheme, with only 1904 accounts in 2011 (Hinz R et al. (2013)).

Calculation of a Chilean Pension

Contributory pensions under a DC scheme (financial or nonfinancial) are affected by personal contribution history, retirement decisions, financial returns, etc. This can be shown by a general pension calculation formula (Holzmann R et al. (2012)):

$$\text{Contributory pension} = \frac{\text{Balance (frequency, intensity, and timing of contributions, returns)}}{\text{Factor (age and longevity at retirement, gender, pension type, interest rates, covered beneficiaries)}}$$

Actuarial calculations imply that pensions are in direct relationship with the frequency and intensity of lifetime contributions, particularly those performed when young. On the part of the denominator, the most critical factor is retirement age; earlier retirement implies interrupting accumulation, interrupting compound interest on part of the balance but specially that the accumulated balance has to finance pensions for a longer period.

In addition to the pension rights acquired through social security contributions, individuals may be entitled to noncontributory rights (for example, the New Solidarity Pillar under the reformed system in Chile, minimum pension entitlements, assistance pensions, etc.); the Solidarity Pension Payment (*APS - Aporte Previsional Solidario*) is calculated according to the following formula:

$$APS = \begin{cases} PBS + \left(1 - \dfrac{PBS}{PMAS}\right) * PB - \sum pensions\ \ received, & if\ \ PB < PBS \\ PBS - \dfrac{PBS}{PMAS} * PB, & if\ \ PB \geq PBS \end{cases}$$

Where,

PBS: *Pension Básica Solidaria* (Basic Solidarity Pension); PMAS: *Pensión máxima con Aporte Solidario* (Maximum Pension with Solidarity Contribution); PB: *Pensión Base* (Base Pension); $\sum pensions\ \ received$ is the result of the sum of the applicant's Reference Self-Funded Pension (which is calculated as an immediate life annuity, with no special coverage conditions, using the average interest rate implicit in old-age or disability life annuities) plus any survivor pensions the applicant may be receiving plus any pensions received from the Institute of Social Security.

Therefore:

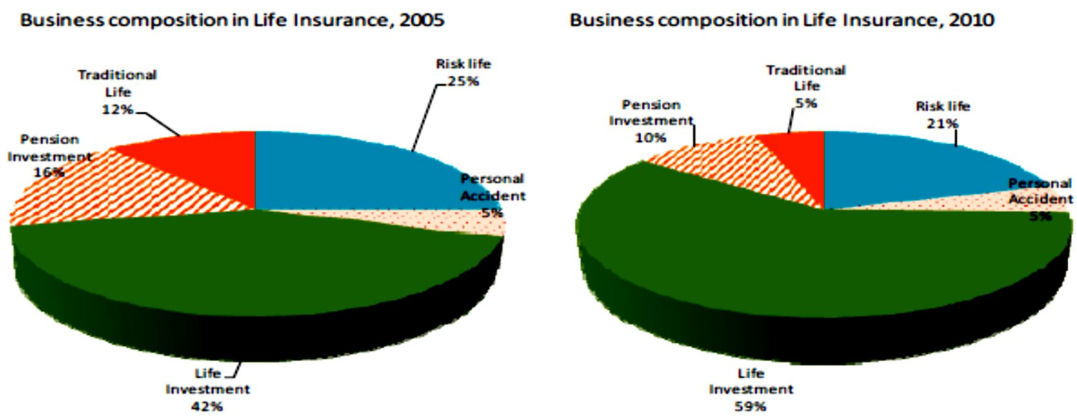
The pension income = Contributory pension + Noncontributory rights + Survivorship pension

3.2. Brazil

3.2.1. Life insurance

Brazil is the most economic potential country in Latin America. Brazil is also the largest insurance market in the region, representing more than 40% of the gross written premiums. The five largest life insurers account for 87.4 % of the life assets, while the five largest composite insurers account for 50.2 % of the composite premium.

FIGURE 5: BUSINESS COMPOSITION IN LIFE INSURANCE 2005-2010



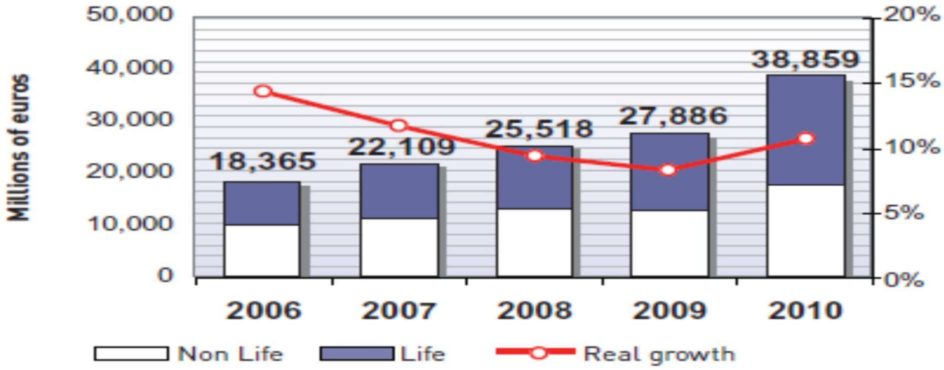
Source: International Monetary Fund (2012)

At the end of 2011 there were around 26 insurance groups and 115 active insurance companies (International Monetary Fund (2012)). However, the three bank-related insurance groups, Itau, Bradesco and Banco do Brasil controlled around 65% of the insurance market in terms of assets either directly or through strategic alliances or exclusivity agreements. The top ten insurers, six of which are part of bank groups, accounted in 2011 for 80% of the assets of the Life insurance market.

According to the BRIC data report, BRICdata (2012), Brazil's Life insurance market is expected to increase at a Compound Annual Growth Rate - CAGR - of 12.3%, to 43.4 bn euros in 2015, that was about 30 bn in 2011. As per the report, the two key drivers of this growth will be increased sales of deferred annuity products (individual pensions) and bancassurance.

The low penetration of insurance makes Brazil an attractive market for insurance companies to explore business opportunities. About 70% of the employed population still remains uninsured.

FIGURE 6: EVOLUTION OF PREMIUMS AND MARKETS SHARE BY BRANCH



Source: Fundación Mapfre (2011)

3.2.2. Pension system

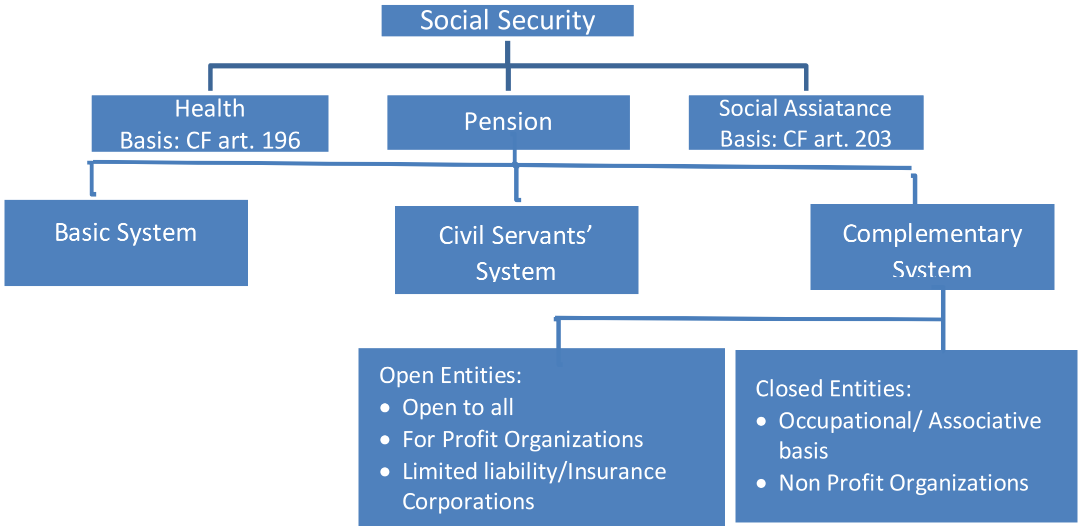
Brazil has a Pension fund system different from the other Latin American countries. The Brazilian Constitution (1988) established a social security system based in three pillars; Health, Social Assistance and Pension. The pension is divided in three main branches, as follows:

The **Basic Social Security System** (BSSS*)*, managed by the National Institute of Social Security. It is mandatory and currently the maximum contribution salary is R$ 3.038,99 (about 1040.82 euros). It attends to the private sector. Employers, paid employees, domestic servants, autonomous workers and rural workers contribute to this system.

The **Civil Servants' System** is mandatory publicly managed system. Employees of Public Companies, political agents, temporary workers, and those with positions of trust are excluded from this group, whose affiliation to the Basic System is mandatory. After 70 years (both), forced retirement is given and retirement due to contribution time is given to men and woman after 35 and 30 years respectively.

The **Complementary System** is voluntary and of private management. It has a variety of arrangements, highlighting funds sponsored by employers and funds formed by unions. This System is divided in two segments: (1) an individual system that operates open pension plans. Employers, singly or as a group, may affiliate their employees to an open pension plan through a group contract. Individual employees, the self-employed and the non-employed may also join open pension plans on a personal basis; (2) an occupational system that operates closed plans and can be established by the sponsor or by unions and professional associations to which affiliation is mandatory. The membership is restricted to the covered employees of the sponsoring employer.

FIGURE 7: KEY CHARACTERISTICS OF BRAZILIAN PENSION SYSTEM



Source: Pugh C and Pinheiro RP (2009)

Brazil's Pension funds plainly dominate (nearly 43%) in terms of total assets in Latin America by the end of 2011 (Campollo Consulting LLC (2013)). The three largest Pension funds hold the top three rankings of Pension funds by total assets, and the country had four funds in the Top 25. Previ Plano I, a DB plan with over US$82 billion in assets, is one of the world's largest Pension funds, and by itself represented nearly 30% and 13% of Brazil's and the region's pension assets, respectively.

In 2011, about 40% of total spending went to the minimum pension (2/3 of Basic System beneficiaries), which has more than doubled in real terms over the past 15 years. The minimum monthly earnings for benefit calculation purposes are equal to the legal monthly minimum wage (BRL 465 (≈ 200 euros), where max is BRL 2 894.28 (≈ 1245.86 euros). The average monthly pension is BRL 1 375.0 (≈ 460 euros and ≈ 60% of GDP per capita). The deficit of the Civil Servant System for the Federal Government employess was about BRL 57 billion (≈ 24.54 bn euros) and for the BSSS was about BRL38.5 billion (≈ 16.57 bn euros). According to data from the Social Welfare Statistical Bulletin (Lima DV et al. (2012)), in 2011, pensions were paid to a total of 15.7 million Brazilians, at a total value of R$12.4 billion (≈ 5.33 bn euros).

Calculation of a Brazilian Pension

1. Benefit Salary: It's the basic value (for monthly income) of the beneficiaries of continuous installments. It is calculated based on the contribution salaries. The benefit salary consists of (Lula da Silva LI et al. (2009)):

a) For the retirements due to contribution time or old-age, it consists of the simple arithmetical average of the highest contribution salaries, monetarily corrected, corresponding to 80% of the contributive period since July 1994, multiplied by a welfare factor (explained below).

b) For disability retirement and special retirement, illness aid and accident aid, it consists of the simple arithmetical average of the highest contribution salaries, corresponding to 80% of the contribution period since July 1994. The benefit salary value will not be less than the minimum wage nor higher than the maximum contribution salary limit.

2. Welfare Factor: It is obligatorily applied to contribution time retirement and to old-age retirement. It is calculated taking into consideration age, life expectancy and how long the insured has contributed before retirement, according to the following formula:

$$F = \frac{Tc \times a}{Es} \times \left[1 + \frac{Id + (Tc \times a)}{100} \right]$$

Where:

F = *fator previdenciário* (welfare factor)

Tc = *Tempo de contribuição no momento da aposentadoria* (Contribution time at the moment of retirement)

a = *Taxa das contribuições* (Total contribution rate 0.31 (Employer 20% and employee contribution from 8% to 11%))

Es = *expectativa de vida após a aposentadoria* (life expectancy after retirement)

Id = *Idade no momento da aposentadoria* (Age at the time of retirement)

3. Wait-Time period: In respect to old age pension it is 180 monthly contributions.

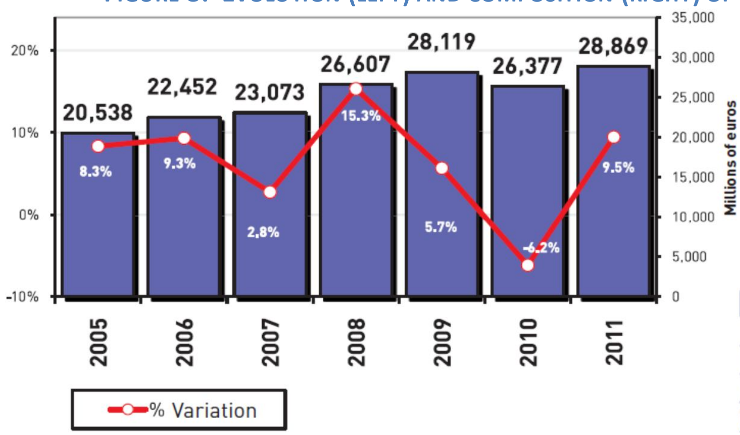
4. Keeping the Condition of Insured: The insured, if unable to contribute momentarily, keeps all his/her rights with social welfare for 12 months, if he/she has contributed up to ten years. This period of 12 months can be extended for one more year, if he/she has already paid for more than ten years without interruption, which would result in the loss of the condition of insured. These periods are incremented by 12 months for the insured who is unemployed.

3.3. Spain

3.3.1. Life insurance

The Spanish Life insurance segment is one of the largest Life segments in Europe and has a healthy trend of CAGR during the last years (Wood L 2012). Despite the global financial crisis, the Spanish Life segment registered growth rates of 17.9% and 8.4% in 2008 and 2009 but decreased by 5.9% in 2010 as a result of the debt crisis which created financial difficulties for the life insurers. Later again bounced back in 2011 with a growth rate of 6.3%. Furthermore, the presence of an aging population, deficits in pensions and a shrinking workforce are expected to drive long term demand for Life insurance and private pension. Overall, the segment is expected to grow at a CAGR of 4.7% over the period 2011-2016 and expected to reach a projected value of EUR37.47 billion in 2016.

FIGURE 8: EVOLUTION (LEFT) AND COMPOSITION (RIGHT) OF LIFE INSURANCE BY CLASS



	Insured persons 2011	
Class	Number	% Variac.
Risk	23,324,398	-0.9%
Long term insurance	19,266	4.4%
Savings/ Retirement	9,827,733	4.2%
Total	**33,171,397**	**0.5%**

Source: Fundación Mapfre (2012)

3.3.2. Pension system

The Spanish Pension system is structured along a three pillar system.

a) First Pillar: The benefits are granted to citizens who have a protected situation and lack of sufficient resources for subsistence under the legally established terms (even never contributed or not contributed for a sufficient time period (15 years)) to reach contributory level benefits. It includes disability and retirement.

b) Second Pillar: Economic benefits, whose concession is normally linked to a previous legal relationship with the Social Security, as long as the remaining requirements are met. In case of employed workers, its amount is determined from contributions made by the worker and the employer during the established period. The following pensions are included under the protective action of the General Scheme and the Special Schemes of the Social Security (with the exceptions indicated for each case and type in the corresponding special schemes):

Retirement pension: Ordinary retirement at 65 years old (both), early retirement due to being a member of a mutual, early retirement due to a reduction of the minimum age for performing hazardous, toxic or harmful work, early retirement for disabled workers, partial retirement, flexible retirement and special retirement at 64 years of age.

Disability pension: Total, Absolute and Severe Disability.

Survivor pension: Widowhood, Orphanage and Family pensions.

c) Third Pillar includes private Pension Plans, administered by private institutions other than general Government. Private Pension Plans are linked to:

Pension Funds: Pool of assets forming an independent legal entity that are bought with the contributions to a Pension Plan for the exclusive purpose of financing Pension Plan benefits. So, Pension Schemes integrate contributions plus other resources into Pension Funds.

Pension Insurance Contracts: An insurance contract that specifies contributions to an insurance undertaking in exchange for which the benefits will be paid. For example, occupational social insurance schemes and other insurance schemes.

TABLE 1. SPANISH PENSION SYSTEM

	1st Pillar	2nd Pillar	3rd Pillar
Type	Mandatory	Mandatory/Voluntary	Voluntary
Management	Public	Public/Private	Private
Form	Non-contributory	Contributory/Occupational plan	Personal saving plan or Occupational plan
Financing	Tax-financed PAYG	PAYG Contributions Funded	Funded

Source: INVERCO (2009)

The contributory system is mandatory for all employees including self-employed. Although there are special schemes for some workers like civil servants, the majority of workers are covered by the social security manages more than 93% of the contributory pensions.

In 2011, the number of social security pensions was 8.9 million (8.7 in 2010), 59.7% being retirement pensions, 26.2% widowhood, 10.6% permanent disability, 3.1% orphan and 0.4%

other survivors (Patxot C et al. (2012)). The contributors to the system were 19.8 million (almost 0.4 million people less than 2010). Pension amounts differ with regard to the type of pension: while the average retirement pension was EUR 923.7 per month (≈ 37.48% of GDP per capita), the average orphan pension and widowhood pension were EUR 360.9 (≈ 18.69% of GDP per capita) and EUR 588.8 per month (≈ 30.5% of GDP per capita), respectively. Regarding contributions in 2011, the maximum was EUR 3,230.1 while the minimum depends on professional standing (going from EUR 748.2 for less qualified to EUR 1,045.2). In the case of non-contributory pensions, that play an important redistributive role, the monthly average amount was EUR 385.4 for retirement and EUR 433.77 for disability in 2011.

Calculation of a Spanish Pension

The public social security system is based on two schemes: basic scheme (non-contributory system) and labour-market-based social security scheme (contributory system). The basic scheme is granted to people with income below a threshold approved in the Budget Law. The benefit is means-tested.

The labour-market-based social security scheme is a mandatory public system. The part of the scheme that covers the self-employed and the employees in the private sector, and the public employees of the regional and local public administrations is managed by the Social Security (SS), as a PAYG system. The pension benefit is related to the number of years of working life and the so-called regulatory base (RB) linked to the contributions paid. Firstly, a RB is calculated using the formula below, which takes into account the last fifteen years (RB15) before retirement (Pedraza P et al. (2008)):

$$RB15 = \frac{\sum_{i=1}^{i=24} CB + CPI \sum_{i=25}^{i=180} CB}{210}$$

CB is the contribution base, equal to salaries but truncated by a maximum and a minimum. These two limits are decided annually by Social Security authorities. CBs corresponding to the 24 months just prior to retirement are computed in nominal terms. The remaining CBs are adjusted according to the evolution of the Consumer Price Index (CPI). There are minimum and maximum pension benefits. Minimum pension benefits depend on pensioner age and household composition. In the case of early retirement, the pension benefit is reduced by 8% for every year before 65. If the worker has contributed for at least 40 years the percentage of reduction is only 6% per year. To receive a pension equal to the calculated RB it is necessary to have paid contributions during 35 years and retire at 65. If the number of years of contributions is equal to the minimum required (15 years), the worker gets only 50% of the RB. The percentage of the RB increases by 3 percentage points for each additional year of contribution until 25 and by 2 percentage points for each additional contribution year afterwards, up to 35. And as for the RB, it is calculated dividing by 210 the contribution base (CB) of the 180 months prior to retirement.

The latest Spanish Pension System reform was approved in July 2011. Changes beginning in 2013 will enable full phase-in of the new system by 2027. The minimum contribution period for pension eligibility remains 15 years and the main changes affecting retirement pension are as follows (Conde-Ruiz JI and Gonzalez CI (2012)):

• Replacement rate. Number of years required to reach 100% of the reference wage increased from 35 to 37 years of contributions.

• Reference wage. Extension of the number of contribution years for calculation of the reference wage increased from 15 to 25 years.

• Retirement age. Statutory retirement age rose from 65 to 67 years (but workers who have contributed for minimum 38.5 years can get full pension at age 65). The early retirement is delayed from 61 to 63 years and eligibility is limited to workers with at least 33 years of contributions and it's applied a penalization coefficient. Special retirement at age 64 is eliminated, and voluntary extension of working life is encouraged via annual bonuses of between 2% and 4% (depending on the total number of contribution years).

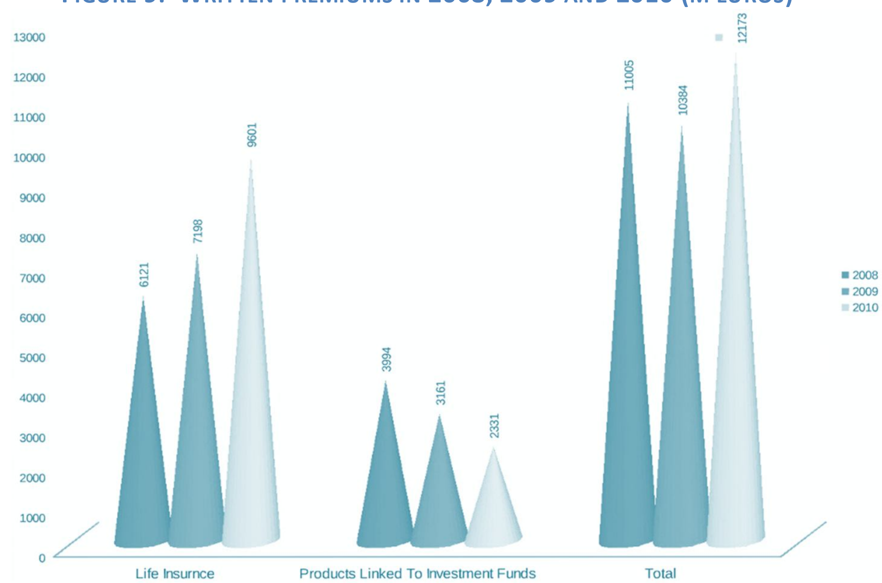
• Sustainability factor. This was introduced to ensure the pension system's long-term viability. Beginning in 2027, the basic parameters of the system will be revised every five years to reflect the difference between the life expectancy at age 67 in 2027 and in the year of revision.

3.4. Portugal

3.4.1. Life insurance

Portugal is the 12th largest Life insurance market in Europe with gross premium of 12,173 million euros in 2010. The market has shown great recovery in 2010 from the economic crisis of 2009 (MAPFRE (2012)) and is dominated by the Life segment which accounted for 74.5% of the gross insurance premium in 2010. Bancassurance distribution channel corresponds to approximately 81.6% of the gross insurance premium writings.

FIGURE 9: WRITTEN PREMIUMS IN 2008, 2009 AND 2010 (M EUROS)



Source: Zigaityte D (2012)

Unit-linked is another major segment. It accounted for the largest share of 66.7% of the written premium of the overall insurance industry in 2011. Life insurance claims also continued to increase significantly as a consequence of the growth in surrenders, which constituted 62% of all life claims in that year. The gross written premium of the Life segment is expected to increase at a CAGR of 2.2% over the period between 2012 - 2016. In 2012 there was a drop of 5.3% which is a direct and indirect consequence of the strong economic crisis in the country.

3.4.2. Pension system

The Portuguese social security system (1st pillar) provides old age, death and disability pension on a PAYG basis. Major benefits covered by social security are old age pension, survivors' pension, death grant, orphans' pension, invalidity benefits, sickness, maternity, paternity and adoption, unemployment benefit, caring for handicapped or elderly relatives.

The second pillar of retirement provision consists of both mandatory and voluntary components. The mandatory system includes portable individual pension accounts managed by public entities, cooperatives and authorized private companies that have been established for this purpose. The voluntary system includes contributions to retirement saving plans, Life insurance, funded arrangements and mutual arrangements.

A minimum 15 years of contributions is required to get an old age pension, 5 years of contributions for a relative disability pension and 3 years of contributions for an absolute disability pension. The standard contribution rates for social security, including unemployment, amount to 34.75% of all earnings, including overtime and commissions (23.75% employer, 11% employee). From the total contribution, about 2/3 is used to finance the disability, death and old retirement and 1/3 to finance other social benefits, such as unemployment, maternity bonus etc. The net replacement ratio is about 69%. The statutory retirement age is 65.

Occupational pension provision is provided by either closed or open funds. Closed funds relate to one single employer's pension plan, groups of companies or by agreement between employers and trade unions. Open funds accept and invest money from any number of unrelated pension plans. Closed Pension funds are mostly of the DB type.

In 2011, the largest category of Portuguese Pension Funds, the Closed Pension Funds, was with EUR 11,803.3 million of assets under management. The Open Pension Funds managed EUR 813.1 million and the PPR (*Planos Poupança Reforma*) managed EUR 339.2 million. The social benefit rate (IAS - Public Support Index (*Indexante dos Apoios Sociais*)) is €419.22 a month (≈ 27.43% of GDP per capita in 2011). Other kind of pensions and benefits are provided according to either some ratio of the salary amount or some ratio of social benefit rate for each.

<u>Calculation of a Portuguese Pension</u>

$$\boldsymbol{Pension} = Reference\ Earnings\ (RE)\ x\ Global\ formation\ rate\ x\ Sustainability\ Factor\ (SF)$$

$Reference\ Earnings\ (RE) = TE\ /\ (nx14), TE =$ total annual earnings (after adjustment)[4] of the whole insurance career

$n =$ number of calendar years with earnings registration, up to the limit of 40[5]

[4] Annual earnings are adjusted according to the consumer price index excluding housing.

$Global\ Formation\ Rate\ =\ 2{,}0\%\ to\ 2{,}3\%\ x\ n$

$Sustainability\ factor\ (SF) =\ ALE\ 2006\ /\ ALE\ retirement\ year\ -1$

ALEi - is the average life expectancy at the age of 65 in the year i

Annual rate varies between 2.0% and 2.3% for each relevant calendar year, according to the corresponding reference earnings amount. When the number of service years is less than 21, the annual rate is 2%, with a minimum of 30% for the global rate. When the number of service years is greater than 20, the annual rate is set according to the echelons:

Reference Earnings/IAS	≤ 1.1	> 1.1-2.0	> 2.0-4.0	> 4.0-8.0	> 8.0
Accrual rate (%)	2.3	2.25	2.2	2.1	2

Transition rules for insured persons registered in the social security until 31.12.2001: Pension that will begin until 31.12.2016

$$P = \frac{P_1 \times n_1 + P_2 \times n_2}{n}, \mathrm{P}_1 = \max(\min(2\% \times n; 80\%); 30\%) \times \overline{S_{+10:15}}$$

$P_2\ = SS\ pension$

$\overline{S_{+10:15}}\ = avg\ wage\ of\ the\ best\ ten\ annual\ salaries\ of\ the\ last\ 15\ years, before\ retirement.$

$n\ =\ number\ of\ years\ with\ earnings\ registration\ relevant\ to\ the\ pension\ formation\ rate.$

$n_1 =\ number\ of\ years\ with\ earnings\ relev\ to\ the\ pension\ form\ rate, until$ 31.12.2006.

$n2 =\ same\ as\ n_1\ but\ from$ 01.01.2007.

Transition rules for Insured persons registered in the social security until 31.12.2001: Pension that will begin after 01.01.2017

$$P = \frac{P_1 \times n_3 + P_2 \times n_4}{n}$$

n_3 = Number of years with earnings relevant to the pension formation rate until 31.12.2001.

n_4 = same as n_3 but from 01.01.2002.

For the purpose of determining n_1, n_2, n_3 and n_4, the whole insurance career is taken into account , even though it is higher than 40 years.

The value of P_1 **is limited to 12 X IAS.** This limit **does not apply:**

- If P_2 is higher than P_1, or;

- If $P_1 > P_2$ and the values of P_1 and P_2 are higher than 12 x IAS. Then, $P_1 = P_2$

[5] If n>40, the best 40 annual earnings (after adjustment) should be taken into account.

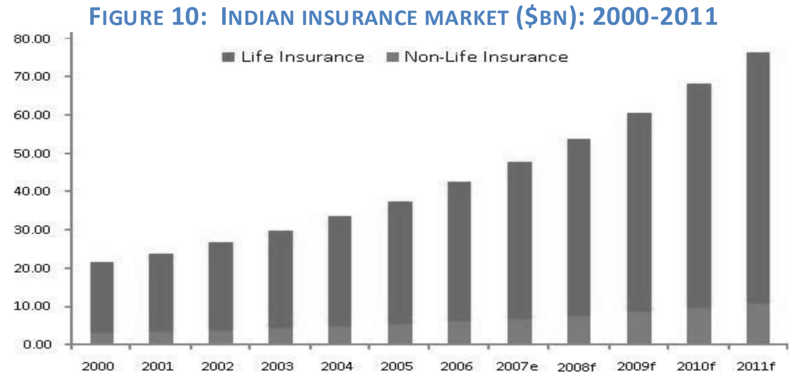
3.5. India

3.5.1. Life insurance

In 1818, a British company called Oriental Life Insurance setup the first insurance firm in India. Bombay Mutual Life Assurance Society (1871) was the first company which started selling policies to Indians. The first comprehensive 'insurance act' was passed in 1938.

Today 22 Life insurance companies, including one with public capital, are successfully operating in India. The growth of the sector till 2011 can easily be judged through Figure-10.

Figure 10: Indian insurance market ($bn): 2000-2011



Source: Srivastava A, Tripathi S, et al. (2012)

According to a study by McKinsey (Andrade N et al. (2012)) total Life insurance market premiums in India has more than doubled since 2006. At present, however, the industry is in crisis and the market is shrinking since 2011. The total life insurance premium in 2012 is shown in Appendix 1.3. Table 2.

A host of regulations have been released recently (2nd quarter 2013), the most notable being the finalisation of linked and non-liked product regulations that may require insurers to withdraw or refile several existing products. The Insurance Regulatory and Development Authority has issued an updated mortality table called Indian Assured Lives Mortality (2006-08) that will be used from 2013-14 on and is indicated to lower premium rates marginally.

3.5.2. Pension system

In 2003 the Government of India established the Pension Fund Regulatory and Development Authority (PFRDA). PFRDA launched a New Pension System (NPS) in 2009 to act as a voluntary DC Pension system to provide sustainable and efficient old age income with reasonable market returns in the long term, for all the citizens. Now the pension will be based on “DC”, the NPS does not ensure any assured amount of pension to the employee despite the life-long contribution to his/her own Pension fund.

Two types of accounts are suggested under the NPS:

- Tier I, mandatory, funded by 10% of Basic + Dearness Allowance (DA) from each Govt. and Employee, no interim withdrawals allowed. Obviously, the DA is a cost of living adjustment allowance paid to employees and pensioners.
- Tier II, voluntary, withdrawals allowed anytime, contributions and savings in this account will not enjoy any tax advantages.

Today, major retirement schemes include provident fund (PF), gratuity and pension schemes. The Employee’s Provident Fund (EPF), which is mandatory for the organized sector and which offers a PF and a pension scheme, requires equal contributions by both the employer and the employee. The EPFs can be administered by either the firms themselves or by public agencies.

General Provident Fund (GPF): This is what is kept aside every month from salary. The minimum amount to save is 6% of basic + DA, and the maxiumum cannot exceed basic + DA. At the time of receiving it back, the amount is tax free. Government pays interest for deposits in GPF, which is currently 8%, one of the best rates of interest for securities.

Gratuity: A lumpsum amount known as gratuity is payable to an employee on superannuation. The amount payable is fifteen days emoluments for every completed six months of service, subject to a maximum of Rs 350 thousands. The emolument includes pay and DA drawn by the employee on the day of superannuation.

Another scheme is the Employees Pension Scheme (EPS), a DB government guaranteed scheme. It is covered by separate law, manages more than $50 billion worth of assets for around 40 million employees and paid a 9.5% return in 2011 (Mahler Fund Management (2011)). The Indian NPS scheme distribution and coverage is shown in Appendix 1.3 Figure 2.

According to The Hindu Business Line (2012), the pension market in India is likely to grow to Rs 2,000 billions (about $44.5 billon) by 2015. But over 80% of the working people still are in the unorganized sector without regular salary and benefits. The Pension Fund market is growing at a CAGR of about 10%, but still more than 300 million working people do not have formal pension benefits.

The minimum pension payment is still trying to be increased up to a minimum of Rs1000 (about $22.22 and 17.87 % of GDP per capita); it was about Rs500 in 2011. The majority of working population in India expects to have better quality of life after retirement. So, pension plans today are growing and account for around 39% of insurance industry's total business. It is expected that Indian share of Pension fund assets to GDP rise from the current level of 5% to about 17% by 2017, the assets worth is about $165.85 billion (Mahler Fund Management 2011).

Calculation of an Indian Pension system

Employees Provident Fund Scheme (EPF): The employee contributes 12% of monthly "Provident Fund Salary" (PF Salary = basic salary + cost of living allowance) towards this fund and the employer matches this contribution. 3.67% of the employer's share goes towards the EPF. This combined 15.67% accumulates as a lump sum.

Employees Pension Scheme (EPS): Of the 12% contribution payable by the employer to the EPF, 8.33% is diverted to EPS. Furthermore, the central government contributes a subsidy of 1.16% of the PF salary into EPS. However, if the PF salary is more than Rs 6,500 (about $144.44) contributions towards the EPS are calculated based on that cap.

Monthly pension or a lump sum = [pensionable salary x pensionable service] / 70

"Pensionable salary" is the average monthly pay drawn during the contributory period of service in the 12 months preceding the date when membership of the EPF ceased.

Payment of Gratuity Scheme: Employers are liable to pay a gratuity to an employee who has rendered continuous service of five years on superannuation, retirement or resignation and on death or disability due to disease or accident.

$$Lump\ sum\ = \left[\frac{15}{26}\right] *\ [Last\ monthly\ salary\ drawn] *\ [Years\ of\ service].$$

National Pension Scheme (NPS): It is a voluntary pension scheme managed by six private Pension Fund Managers (PFM) open to all citizens. Participants are free to choose their investment amounts. There is a minimum of Indian Rs 500 per month payable at least once a quarter. There is no guarantee on capital or returns. Unlike the other schemes, retirement age is set at 60.

3.6. Nepal

3.6.1. Life insurance

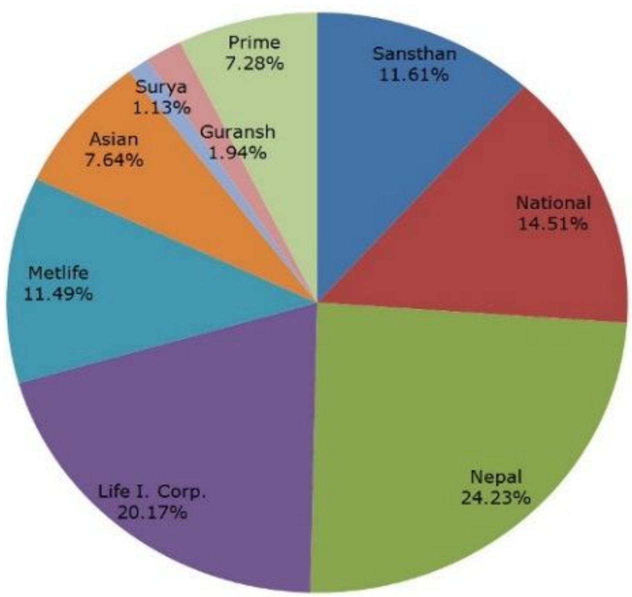
In 1972, Rastriya Beema Sansthan (RBS) had started to operate life business after the first insurance company Life Insurance Corporation of India (LIC) voluntarily withdrew from the Nepalese market. In 1986, National Life and General Insurance Company Limited (Now operating life and non-life business separately) was licensed as the first insurance company in the private sector.

TABLE 2. LIFE INSURANCE COMPANIES IN NEPAL

S.N.	Company	Estd. Year	No of company Branches
1	Rastriya Beema Sansthan	1968	11
2	National Life Insurance Co Ltd.	1986	99
3	Nepal Life Insurance Co. Ltd.	2001	23
4	Life Insurance Corporation (Nepal) Ltd.	2001	25
5	Met Life ALICO	2001	15
6	Asian Life Insurance Co. Ltd.	2008	114
7	Surya Life Insurance Co. Ltd.	2008	35
8	Guras Life Insurance Co. Ltd.	2008	23
9	Prime Life Insurance Co. Ltd.	2008	97

Source: Beema Samiti (2012)

FIGURE 11: INSURANCE MARKET VOLUME



Source: Gimire R (2013)

The life segment accounted the largest share of the total written premium value, representing a CAGR of 26.8% in 2012, as rural markets continued to generate new business for life insurer. The premium volume of Life market in last five years is shown in Appendix 1.3 Table 3.

A total of nine Life insurance companies generated a premium income of Rs 13.25 billion (about $15.24 million) in the one year period through July 2012 (NICCI e-Newsflash (2012)), as against Rs 10.45 billion raised by these companies in the same period the previous year. Of the amount, the insurance companies generated Rs 4.75 billion by selling new policies and Rs 8.50 billion by renewing old policies.

3.6.2. Pension system

After influence of 'universal' Pension system in the industrial world, Nepal introduced laws requiring private employees to participate in a DC scheme in 1995. So, the mandated schemes that cover private sector workers are provident funds. The retirement age is 58.

Also Nepal introduced an Old Age Allowance (OAA) scheme, a universal tax-financed pension program paid to all citizens aged 65 (reduced from 70) or older, that was Rs500 per month in 2012 (about US$6). The public pension plans are only available to government employees; these are DB PAYGO plan and have been financed directly from the budget.

Pensions are the single fastest growing item in the government budget and represent a large and liability. The total expenditure on pensions in the fiscal year 2008/09, excluding expenditure on voluntary retirement schemes, was Rs. 10.37 billion, or 4.75% (in 2000/01, it was 1.83%) of the total expenditure. But these payments do not include the Rs8 billion given away in allowances to senior citizens (Bhattarai N and Bhattarai M ((2012)).

The informal and self-employed workforce still does not have any social security during or after their service period. In 2012, the civil service or military pension was between 8,000 to 12,000 Rupees per month (about $93 to $139 that is 66.67% to 127.4% of GDP per Capita). So, in order to aggregate all people into Pension system, a fully funded DC scheme with a multi-pillar Pension system would be the appropriate mechanism under which people could participate in ensuring an income for themselves during their old age.

Calculation of a Nepalese Pension

Old Age Allowance and public pension (DB plans) are directly financed from the budget. So, there are no special formulas to calculate the Pensions. However, some of the companies like Nepal Telecom’s provide occupational pension contributions and pension benifit, which can be calculated by using the formula

$$Monthly\ pension\ (\geq\ 20\ years\ tenure\ employees)$$
$$=\ Total\ tenure\ of\ employment\ \ x\ \ The\ last\ monthly\ salary\ amount\ drawn\ /\ 40.$$

The maximum pension must be less or equal to 90% of the last salary amount drawn.

Other general rules for pension calculation are:

Provident fund: Like in India, it requires equal contributions by both the employer and the employee. It has a fixed rate of 10% and no other contribution option or rate is available.

Gratuity is also part of an old age benefit. It is also known as a severance pay. As per the provision in the Labour Rules, the employees serving for three years or more and retiring from the service are entitled to get gratuity at the following rates: For the first seven years of continuous service, gratuity should be paid at the rate of 50 % of the monthly salary per annum; for seven to fifteen years of continuous service, gratuity should be paid at the rate of the two-thirds of the monthly salary per annum; for more than 15 years, one month's salary per annum.

Disability compensation: If an employee is physically disabled as a result of an accident while in employment, the employer must pay a lump sum amount equivalent to the salary of five years of the last drawn salary, in case disability is found to be 100%. In case disability is less than 100%, the amount of compensation shall be calculated according to the percentage of disability.

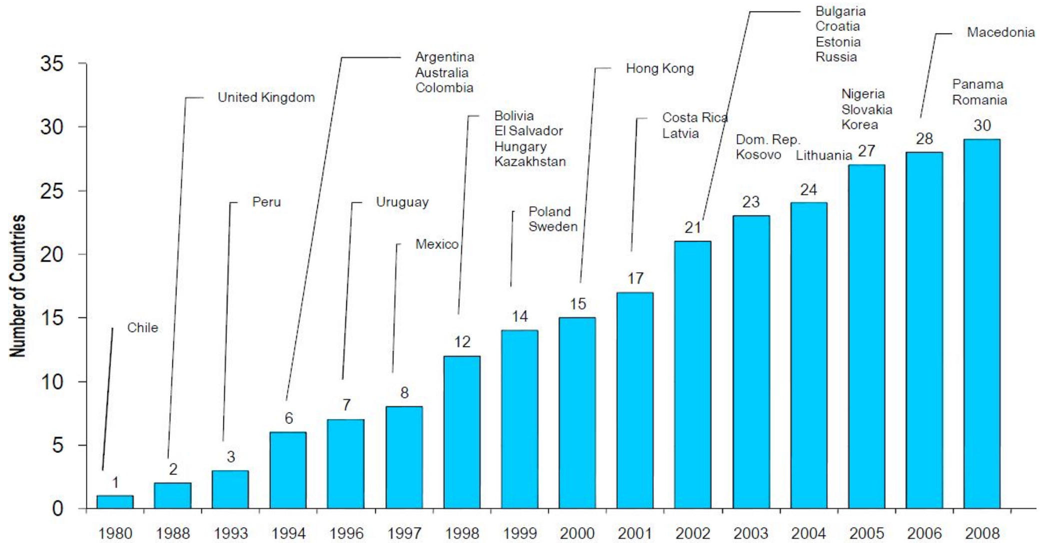
Compensation in case of death: In this case employer should pay an amount equivalent to three years' salary calculated at the last drawn salary rate to the closest surviving relative.

4. PENSION REFORM AND ITS EFFECTS

4.1. Pension reform around the world

The major pension reforms started in the late 1990s, when some central and eastern European countries replaced part of their PAYG benefits with mandatory DC pension plans managed by the private sector. This helped to build the funded tier, creating a short term fiscal cost but improving the long-term sustainability of the Pension system.

FIGURE 12: EVOLUTION OF NUMBER OF COUNTRIES WITH (MANDATED AND FUNDED) "SECOND PILLARS" AS OF 2008



Source: Holzmann R (2012)

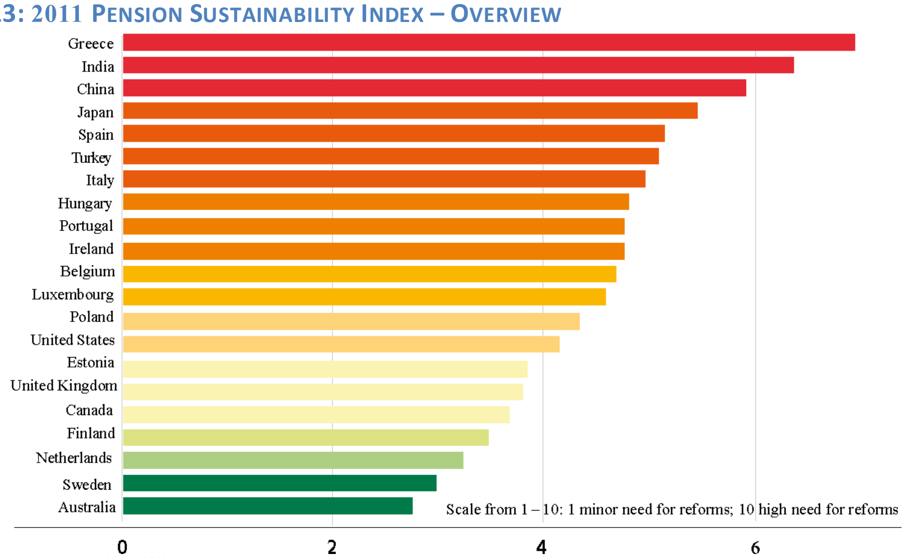
Overall, the pace of pension reform has accelerated over the period 2007-2010. Changes include increases in pensionable ages, the introduction of automatic adjustment mechanisms and the strengthening of work incentives. Some countries have also better focused public pension expenditure on lower income groups. However, some recent reforms have raised controversy, such as the decision of some EU countries (Estonia, Hungary, Latvia, Poland, Romania) to pull back earlier reforms that introduced a mandatory funded component after the 2008 crisis which gave a negative effects on PAYG-financed public pensions (Finke R and Williams M (2011)).

The worldwide Pension system reform is broadly the result of three changes: a readjustment of objectives (such as a refocus on basic protection for the vulnerable elderly); moving reform needs (such as the urgency of addressing the effects of population aging and deferred retirement ages); and perceived and actual changes in enabling environments, such as more realistic views about the capacity of funded schemes to manage risks, the achievable rates of return and the fiscal restrictions to finance transition deficits.

4.2. Effects of Pension reform

The crisis of 2008 has led to new developments in the history of Pension reform. Nearly all countries have been active in changing retirement-income provision. The only exception is Luxembourg with no changes. Iceland, the Netherlands, New Zealand, Slovenia and the USA have seen only relatively minor adjustments compared with the rest of the OECD (OECD (2012a)). Argentina and Bolivia have effectively reversed their reforms based on individual accounts. In some parts of Europe, countries are debating the resizing of the private tier of their Pension systems (Croatia, Hungary, Poland). Norway, Italy, Poland and Sweden introduced notional accounts. These schemes entail an automatic reduction in the level of pension benefits as life expectancy increase. The first reduction in new pensions due to a life-expectancy link in Finland took place in 2010. Spain is also planning to adopt an automatic-adjustment mechanism after 2027. Portugal has already introduced an adjusted factor and other measures are under sudy (Schwartz G et al. (2013)). Figure 13 below shows the level of pension reform requirement in 2011 for each country.

FIGURE 13: 2011 PENSION SUSTAINABILITY INDEX – OVERVIEW



Source: Finke R and Williams M (2011)

In terms of altering old-age Pension systems, nearly all high-income countries (39) are considering this option, including Australia, Japan and the United States, whose governments have not embarked on major austerity reforms like their European counterparts. Common Pension reforms include raising the retirement age, reducing benefits, increasing contribution rates and reducing pension tax exemptions. The Czech Republic is discussing privatization of part of its public pension, moving from a PAYGO to a multi-pillar system.

Reforms have also been introduced to ensure the financial viability of the pension system in the face of exogenous shocks. While the effects from these reforms will be significant only beyond 2020, these measures are expected to largely offset the adverse effects of demographic developments. After reforms, wage indexation of benefits has been terminated. In countries where pensions were still entirely or partially indexed to nominal wages, reforms have moved to price indexation. This includes pension systems in Hungary and Romania, while in many countries hit hard by the crisis, benefits have been cut or frozen, including in Greece and the Baltic countries (Baldacci E et al. (2010)).

The impact of reforms shows that benefits for today's workers will be 23% lower than they would have been had the old rules continued on average in these countries – Austria, Germany, Italy, Japan, Korea, Portugal and Turkey. Average earners in Finland, France and Sweden, will receive pensions 15-20% less than under the old rules, while lower earners are less affected (OECD (2012a)).

Indeed, it is moot whether the public purse could have continued to afford the benefits promised under the pre-reform rules. Nevertheless, this creates a significant "pension gap" in most of these countries. This will need to be filled with later retirement or private retirement savings, if future pensioners are not to face a significantly lower standard of living in retirement than today's retirees. But one thing is very clear; pension reform has brought huge number of protesters to the streets in many countries in the past few years. Governments are usually sensitive to that and because of political issues not all pension reforms are implemented in a real practice. For example, in 2013 Portugal was expected to reduce employer contributions from 23.75% to 18% and increase employee contributions from 11% to 18% (OECD (2012a)).

5. CONCLUSION

This thesis has attempted to provide a general description and trend of the Life insurance business and Pension system around the world as well as more deep information of selected countries' profiles with comparative view from different continents. The purpose was to provide a general idea to understand worldwide life business structure.

Among the main facts observed, on the Life insurance part of our research, North American Life insurance was effected immediately after financial crisis and the European markets a bit later on, but growth in emerging markets strongly helped the Life insurance world market and economic recovery. Global Life insurance premium growth again decelerated somewhat in 2011, with the most noticeable slowdowns in the Chinese and Indian markets. But it is expected that in 2013, it will grow in all regions and get positive trend. If we make conclusion for Life insurance business of our selected countries in this thesis, Spain got negative growth in 2010, but somehow it has recovered and got positive growth in 2011, while Portugal was strongly negatively effected in 2011. Brazil, Chile and Nepal got positive growth but with slow rates. India was strongly effected on 2008 with negative growth, and again in 2011, because of government rules and Unit Linked Life insurance distribution. 2008 to 2012 was a very volatile period for Life insurance growth. But everything is expected to be positive after 2013.

The Pensions part of our thesis particularly focused on Pension system. We have tried to explain a wide variety of mandatory Pension systems in the world and give further explaination about calculation methods, trends, difficulties and pension modalities in selected countries. Pension systems can be classified from different criteria making the study more complex. The three pillars Pension system is accepted in many countries and expected to enlarge to others. We observed that around 65% of all mandatory national Pension systems worldwide are DB, mostly still financed on a PAYG basis. More than 70% of all mandatory national Pension systems are publicly-managed. Among all mandatory national Pension systems, around 30% are fully-funded DC, another 30% are partially funded, and more than 30% are unfunded. There are currently 32 countries in the world with second pillars (mandatory privately managed individual accounts) Pension system. The vast majority of systems are publically managed with less than

25% classified as primarily privately managed. Amoung our selected countries, all of them developed three pillars Pension system and funding method, but still Nepal has only universal Pension system. Chile's pioneer experience is now popular and still applying to the other countries but in times of crisis it is not possible to implement. Outreville JF (2013) and Chien-Chiang L et al. (2013) give very interesting insights on the life insurance activities and the economic growth.

Chapter 4 intended to shortly explain about pension reform and its' effects. The 2008 crises have had an impact on all types of Pension systems around the world. So, many countries reformed their Pension system and many of them started to think about it. But the implementation of a new Pension plan is hard, the transition from old to new is painful and will also take a long time. However, due to the impact of the aging population on the labour market and the economy, in many countries this reform is urgent. New reforms can decrease benefits for today's workers very sharply in future in some countries. And also there are increasing new alternative or complementary reform approaches, such as Non-financial (or Notional) Defined Contribution (NDC) and Matching Defined Contribution (MDC) schemes. MDCs are voluntary systems that can be funded or PAYG. Workers contribute flat rates, as opposed to a share of earnings, and have flexible contribution schedules. To create incentives to enroll, the government matches contributions up to a maximum capital. Matching levels can be set on the basis of reported earnings or proxy means tests. In principle, matching contributions may be provided for public programs or by the sponsors of private occupational plans and could be associated with either DC or DB systems (Holzmann R et al. (2009)). While these new approaches should help move Pension systems towards greater coverage and sustainability, there are a number of issues that still await solutions, such as addressing the uncertainty about longevity increases.

Because of the limitations already stressed a more thorough analysis was not possible. In future works, more countries will be explored and the issue of reforms will be deeper dealt with.

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APPENDICES

Appendix 1.1. Some definitions

Appendix 1.1.1. Life insurance

In this thesis three basic types of Life insurance contracts are considered (see Dickson DCM et al. (2009) for a more complete outlook):

- **Whole Life insurance** pays a lump sum benefit on the death of the policyholder whenever it occurs. Regular premium is often payable only up to some maximum age, such as 80. This avoids the problem that older lives may be less able to pay the premiums.
- **Term insurance** pays a lump sum benefit on the death of the policyholder, provided death occurs before the end of a specified term.
- **Endowment insurance** offers a lump sum benefit paid either on the death of the policyholder or at the end of a specified term, whichever occurs first. This is a mixture of a term insurance benefit and a savings element. If the policyholder dies, the sum insured is paid just as under term insurance; if the policyholder survives, is treated as a maturing investment.

In recent years insurers have provided more flexible products that combine the death benefit coverage with a significant investment element, as a way of competing for policyholders' savings with other institutions. Most popular modern insurance contracts (cf Dickson DCM et al. (2009)) are:

- **Universal Life insurance** combines investment and Life insurance. The policyholder determines a premium and a level of Life insurance cover. Some of the premium is used to fund the Life insurance; the remainder is paid into an investment fund.
- **Equity-linked insurance** has a benefit linked to the performance of an investment fund. There are two different forms. The first is where the policyholder's premiums are invested in an open-ended investment company style account; at maturity, the benefit is the accumulated value of the premiums. There is a guaranteed minimum death benefit payable if the policyholder dies before the contract matures. The second form of equity-linked insurance is the **Equity-Indexed Annuity – EIA** (in USA). Under an EIA the policyholder is guaranteed a minimum return on thei premiums (minus an initial expense charge). At maturity, the policyholder receives a proportion of the return on a specified stock index, if that is greater than the guaranteed minimum return.

Appendix 1.1.2. Pension system

The basic concepts that follow are, for instance, in Barr N and Diamond P (2010).

- **PAYG pensions** are paid out of current revenue (usually by the state, from contributions revenue) rather than out of an accumulated fund
- **Funded pensions** are paid from an accumulated fund built up over a period of years out of contributions by or on behalf of its members.
- **Defined-contribution pensions (DC)**. A person's pension is determined only by the amount of assets accumulated toward his/her pension. Thus, a pure plan adjusts obligations to match available funds. The risk of varying rates of return to pension assets falls on the individual.
- **Defined-benefit pensions (DB).** In this arrangement a person's pension is based on his or her wage history and commonly on length of service. Thus, a pure arrangement adjusts funds to meet anticipated obligations, so the risk of varying rates of return to pension assets falls on the organizer, i.e. the employer or the government.
- **Notional defined-contribution pensions (NDC)** are organized on a PAYG basis; but they mimic funded individual accounts in that a person's pension is strictly related to his or her lifetime pension contributions. Thus a pure NDC system is a PAYG with actuarial benefits.

Appendix 1.2. Pension systems around the world

Appendix 1.2.1. Pillars of a Pension system

There is a wide variety of mandatory Pension systems in the world. We can classify the systems by different criteria (how benefits are calculated, how benefits are financed, or who manages the system) and we can also classify the countries by pension modalities (by how many pensions pillars they have) or by whether they have integrated Pension systems.

Traditionally, from the perspective of the providers of pensions, there are three pillars (Willmore L (2000)):

- **Pillar 1 - Public pensions:** Usually compulsory and financed by governments on a PAYG basis (pensions being paid are provided with the contributions being received).
- **Pillar 2 - Occupational pensions set up by an employer or a trade union:** Provided by the company or unions and usually contributory (with forced individual savings).

- **Pillar 3 -Personal pensions:** Usually contributory and voluntary.

The weight of each pillar varies considerably from country to country as well as the characteristics of their pension plans.

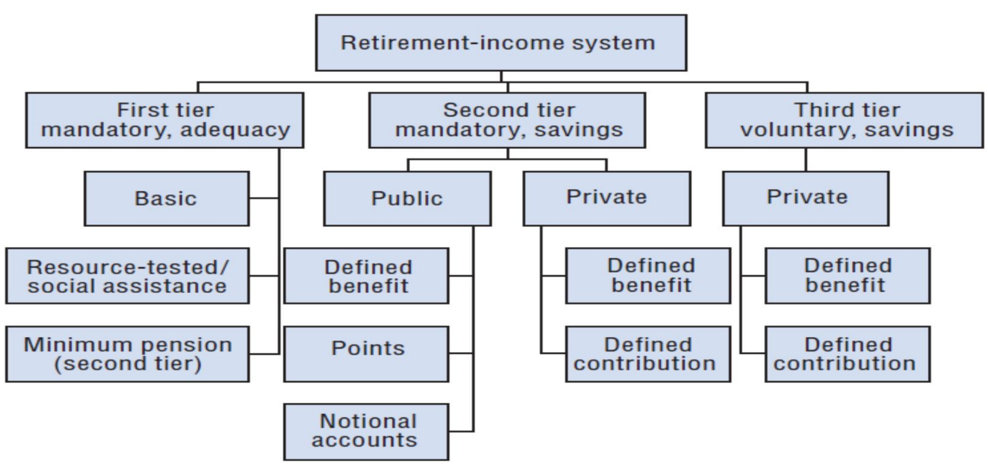
Most countries in the high-income OECD level have some type of zero pillars (social pensions), and the number of these programs is also growing in all regions. The zero pillar (concept is available in the World Bank publications like Holzmann R (2012) and Hinz R et al. (2013); it corresponds to the general social assistance or old-age income security typically financed by the local, regional or national government to all of the elderly.

From the perspective of those who participate in the retirement scheme we can define also three pillars in this useful way (see Pallares-Miralles M et al. (2012)):

- **Pillar 1 - Non-contributory (basic pension):** Guarantees a minimum income in old age. Is public, financed by the government on a pay-as-you-go basis.
- **Pillar 2 - Contributory (forced savings):** Provides benefits only to contributors and, in general, provides a higher benefit to those who contribute the most.Almost everywhere has traditionally been public and pay-as-you-go as well; but it can also be private and prefunded, in part or in whole.
- **Pillar 3 - Contributory (voluntary savings):** Prefunded and typically private because participation is voluntary.

Within each pillar there are many types of pensions, sometimes referred to as tiers (see Appendix Figure 1).

APPENDIX FIGURE 14: DIFFERENT TYPES OF RETIREMENT-INCOME PROVISION



Source: OECD 2011

Three-pillar pension systems perform best in combination with a dynamic labour market, which includes a low unemployment rate and a high participation rate of older workers. Nonetheless, the recent financial crisis has shown that even well developed three-pillar pension schemes are struggling with the rate of funding for its future liabilities due to extensive market losses (Eichhorst W et al. (2011)). This shows that fully funded systems are vulnerable as well. However, it is clear that with the demographic changes and the volatility of financial markets no system can be developed which is invulnerable to outside challenges, whether demographic or economic.

On the one hand, a public pillar is necessary to provide a certain income that is sufficient to prevent the elderly from falling into extreme poverty. On the other hand, the old age risk must be borne by individuals through savings in occupational and private pensions plans.

Appendix 1.3. Tables and Figures

Appendix Table 3. Basic system architecture by region

		Modality of Pillars			National scheme and civil servants scheme		
Region	Number of countries	Pillar zero	Pillar 1	Pillar 2	Separated	Integrated	Partially-Integated
East Asia & the Pacific	28	11	17	1	9	7	2
Estern Europe & central Asia	30	17	30	14	1	29	0
Latin America & caribbean	37	19	29	10	3	22	5
Middle East & North Africa	20	2	18	1	7	8	3
South Asia	8	4	4	1	6	1	0
Sub-Saharan Africa	46	8	33	2	24	11	1
High-income OECD	24	20	20	3	10	11	2
World	193	81	151	32	60	89	13

Source: Pallares-Miralles M et al. (2012)

Appendix Table 4. The total Life Insurance Premium in 2012 (M$)

	Total Premium	Growth %	First Year Premium	Growth %
2007-08	37756.35	29.01	17572.47	23.88
2008-09	41588.04	10.15	16375.87	-6.81
2009-10	49775.85	19.69	20606.73	25.84
2010-11	54686.53	9.87	23701.52	15.02
2011-12	53830.25	-1.57	21365.83	-9.85

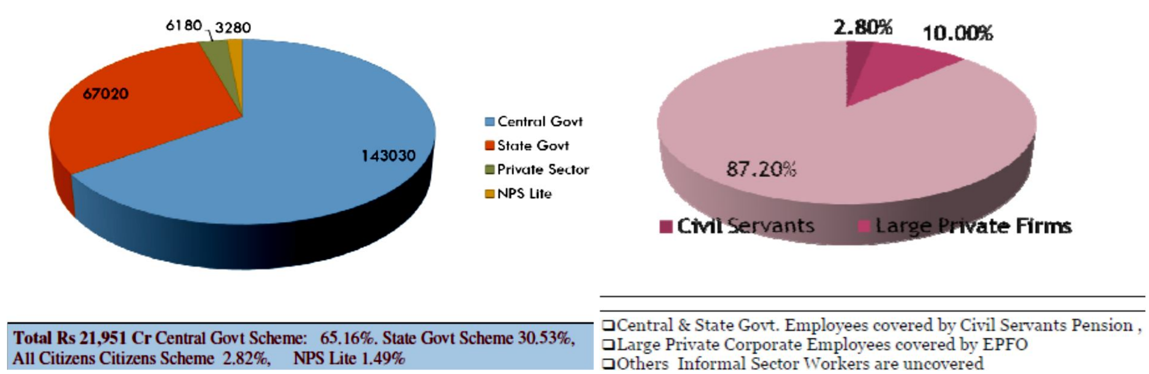
Source: Santosh K (2013)

APPENDIX TABLE 5. LIFE INSURANCE PREMIUM COLLECTION (NRS)

Fiscal Year	Premium (In million $)	Premium Growth Rate (In %)
2004/05	34.39	20.02
2005/06	43.58	26.74
2006/07	53.18	22.02
2007/08	63.15	18.74
2008/09	76.33	20.87
2009/10	100.83	32.11
2010/11	119.88	19.20
2011/12*	133.43	11.30
* Projected	**Average**	22.81

Source: Beema Samiti (2012)

APPENDIX FIGURE 15: NPS-SCHEME DISTRIBUTION AND COVERAGE (RS CORORE IN 2012)



Source: Sadhak H (2012)

Appendix 1.4. Comparative view between the Chilean and Brazilian markets

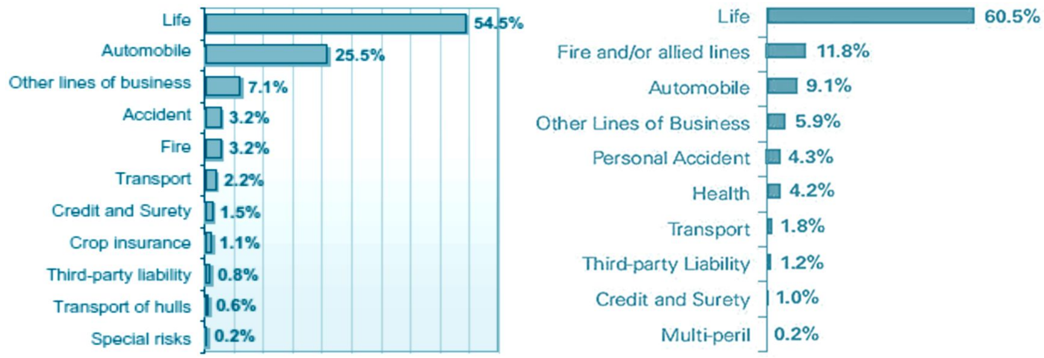
Appendix 1.4.1. Life insurance

APPENDIX FIGURE 16: PREMIUM VOLUME PERLINE (M EUROS)

Line of business	Brazil [1]	Chile
Life	**21,177**	**3,752**
Individual and group life	21,177	1,560
Private pension plans	–	2,192
Non-Life	**17,682**	**2,448**
Automobile	9,900	563
Health	–	262
Fire and allied lines	1,251	729
Other lines of business	3,280	378
Transport	1,096	111
Third-party liability	324	76
Personal accident	1,260	264
Credit and/or Surety	571	64
Worker Compensation	–	–
Total	**38,859**	**6,200**

Source: Fundación Mapfre (2011)

APPENDIX FIGURE 17: EVOLUTION OF BRAZIL (LEFT) & CHILE (RIGHT) PREMIUMS AND MARKETS SHARE 2010 BY BRANCH



Source: Fundación Mapfre (2011)

Appendix 1.4.2. Pension system

APPENDIX TABLE 6. BRAZILIAN AND CHILEAN PENSION SYSTEM COMPARISON BY KEY CHARACTERISTICS

Brazil	Chile
The Pension system	
The BSSS covers the private sector workforce. It is a mandatory, pay-as-you-go financed single-pillar scheme, which is operated by the National Social Security Institute	Has three components: a redistributive first tier, a second tier of mandatory individual accounts and a voluntary third tier. The individual accounts, introduced in 1981, are of the defined-contribution type. The redistributive first tier was substantially extended in a pension reform in 2008
a. Average earnings (EUR) b. Public pension (% of GDP) c. Life expectancy at birth d. Life expectancy at age 65 and e. Population over 65 (% of working- age) respectively	
a. 6,520 **b. not available** **c.** 72.4 **d.** 82.5 **e.** 11.3	**a.** 8,114 **b.** 5.2 **c.** 78.6 **d.** 83.7 **e.** 14.8
Qualifying conditions	
Private-sector employees retirement at age 65 for men and 60 for women if they have a contribution record of at least 15 years. Alternatively, it is possible to retire after having contributed to social security for 35 years for men and 30 years for women, irrespective of the retiree's age.	**Defined contribution:** retirement age is 65 for men and 60 for women. Pension benefits can be drawn at any point from that age. Individuals don't need to stop working to claim pension. **Basic and supplementary schemes:** The basic solidarity pension (PBS) is payable from age 65 on condition that people have lived in the country for at least 20 years and at least four of the five years prior to the claim.
Benefit calculation	
Old-age pension: average earnings are calculated based on the best 80% of total monthly earnings, multiplied by the *Factor Previdenciario (FP).* It is an actuarial coefficient based on the insured's contribution rate, contribution period, age, and life expectancy. The minimum monthly earnings for benefit calculation purposes are equal to the legal monthly minimum wage. The maximum monthly earnings for benefit calculation purposes are BRL 2 894.28. The minimum pension for minimum monthly contributions is equal to the legal monthly minimum wage.	**Defined contribution:** The contribution rate for individual accounts is 10% of earnings. Administrative charges are levied on top of this contribution (not out of the mandatory contribution). At retirement, the accumulated capital can be used to buy an immediate life annuity, to get a temporary income with a deferred life annuity, to take programmed withdrawals, or to buy an immediate life annuity with programmed withdrawals. A withdrawal of 15 "unidad de fomento" (UFs) is made from the individual account to cover for funeral expenses. **Basic:** The basic pension (PBS) was CLP 60 000 in 2008-09. This was increased to CLP 75 000 from 2008 reform. The modelling uses this higher value for the PBS and assumes it is indexed to

	wages
Variant careers	
Early retirement: Early retirement is allowed at age 53 with at least 30 years of contributions (men) or age 48 with at least 25 years of contributions (women). **Late retirement:** Pensions can be claimed along with employment, and there is therefore no incentive to delay payment.	**Early retirement:** allowed at any age in the DC scheme. The benefit must be worth 150% of the minimum pension under the old system. From July 2012 onwards, this changed to 80% of the maximum welfare pension. The second condition is that a certain replacement rate is reached, relative to earnings in the ten years prior to drawing the pension. **Late retirement:** It is possible to defer pension claiming after normal retirement age.

Source: OECD (2011)

Appendix 1.5. Comparative view between the Spanish and Portuguese markets

Appendix 1.5.1. Life insurance

APPENDIX TABLE 7. COMPARATIVE VIEW BETWEEN SPANISH AND PORTUGUESE LIFE INSURERS INVESTMENT PORTFOLIO

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Nominal Growth 2009/10*
ES Spain	87612	93676	100237	107987	166507	124072	126265	n.a	164432	n.a.	n.a.
PT Portugal	18749	20777	23371	26846	33664	38697	42242	41288	48954	50056	2.3%

Source: Insurance Europe (2011)

APPENDIX TABLE 8. COMPARATIVE VIEW BETWEEN SPANISH AND PORTUGUESE NUMBER OF LIFE INSURANCE COMPANIES

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
ES Spain	401	393	379	362	354	357	296	294	287	279
PT Portugal	85	74	70	70	76	83	85	87	82	78

Source: Insurance Europe (2013)

Life insurance business was hit the hardest in Portugal (-38%) in 2011 (Insurance Europe (2013)). In Portugal the fall, which follows substantial growth of more than 15% in 2010, is mainly due to a fall of over 50% in the premium income from traditional Life insurance products. Despite a weak economy, Spain, with a European market share of 5%, reported the second largest increase (+9%) in life premiums in 2011. This is in contrast to 2010 when the country was among a group of four countries in which life premiums contracted by more than 5%.

Appendix 1.5.2. Pension system

APPENDIX TABLE 9. SPANISH AND PORTUGUESE PENSION SYSTEM COMPARISON BY KEY CHARACTERISTICS

Spain	Portugal
The Pension system	
The public Pension system consists of a single, earnings-related benefit with a means-tested minimum pension. There is also a non-contribution means-tested level.	Portugal has an earnings-related public pension scheme with a means-tested.
a. Annual average earnings (EUR) b. Public pension (% of GDP) c. Life expectancy at birth d. Life expectancy at age 65 and e. Population over 65 (% of working- age) respectively	
a. 16808 **b.** 8.0 **c.** 80.8 **d.** 84.3 **e.** 26.8	**a.** 11664 **b.** 7.0 **c.** 78.9 **d.** 83.1 **e.** 23.6
Qualifying conditions	
The retirement age for a full benefit is 65 years for men and women. 15 years of contributions are necessary to qualify for a pension benefit.	The standard pension age is 65. A minimum contributions requirement is 15 years. ER is possible with 30 years of contributions.
Benefit calculation	
Earnings related: The benefit accrues according to a schedule. After 15 years' contributions, it is 50% of the earnings base. Over the next ten years, an extra 3% is accrued per year, followed by 2% per year thereafter. The maximum accrual is 100%, reached after 35 years' contributions. **Minimum:** The minimum pension payable from age 65 is EUR 530.63 per month, or 32.0% of average earnings, for pensioners without a dependent spouse. There are 14 payments per year.	**Earnings related:** The annual earnings registered in the social security and taken into account to the Reference Earnings calculation are adjusted according to the consumer price index, without considering the home factor. **Minimum:** The monthly minimum pension for the contributory scheme is variable according to the length of contributory career, as shown above (chapter 3.6.1). There are 14 monthly payments.
Variant careers	
Early retirement: Early retirement is available from age 61 for people entering the system in 1967 or later who are unemployed (who contributed for at least 30 years). The actuarial reduction depends on the number of years of contributions: 7.5% (30-34 years), 7% (35-37 years), 6.5% (38-39 years), and 6% for more than 40 years of contributions. **Late retirement:** For workers who have contributed 15 years or more and continue working after 65 years old, the pension will increase their benefit by 2% of the base of calculation per additional year. The increase is 3% with 40 years of contributions. Pensioners entitled of a max pension entering retirement with 66 years or more will receive an annual lump sum (2% of the max pension per additional year after 65, 3% with 40 years of contributions).	**Early retirement** is possible for person who has at least 55 years of age and 30 calendar years with earnings registration. If person claims the pension before 65 years of age, then the reduction rate is 0.5% for each month of anticipation until that age. Nevertheless, the number of anticipation months will be reduced by 12 months for each period of three years that exceeds those 30 calendar years. **Late retirement:** If the insured person claims the old-age pension when he/she is older than 65 years and has at least 15 calendar years with earnings registration relevant to the pension calculation, the pension amount will be increased by applying the respective monthly rate multiplied by the number of months completed between the month of pension beginning and the month when he/she has reached 65 years of age. The age limit is 70.

Source: OECD (2011)

Appendix 1.6. Comparative view between the Indian and Nepalese markets

Appendix 1.6.1. Life insurance

Nepalese insurance market was started from an Indian Insurance Company. So, it would be not so rational to compare Indian insurance market and Nepalese insurance markets for their volume and strength. Many of Indian insurance companies are still actively running and dominating Nepalese insurance markets. Appendix Table 8 shows that Nepalese insurance market is very weak, even though it is quite better developed than some of other south Asian countries (for example, Bangladesh).

Appendix Table 10. Insurance density measures (US$) as ratio or premium to total population

	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
World	469.6	511.5	518.5	554.8	607.7	633.9	673.4
India	16.4	19.7	22.7	38.4	46.6	47.4	49
Nepal	2.39	2.59	2.86	3.19	3.72	4.22	5.07

Source: Nepal RK (2012)

Table 9 below shows the Indian insurance premiums are more stable than Nepalese. We can see bigger percentage of change in successive year in comparison to the world insurance premium volumes.

Appendix Table 11. Changes in International and National insurance premium volumes

Description	Changes in insurance premium volumes (In percentage)						
	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
World	2.5	2.9	2.5	4.2	3.6	3.44	3.19
India	17.38	16.52	24.99	49.95	27.40	8.18	5.67
Nepal	19.10	10.81	21.08	14.14	19.63	15.96	27.58

Source: Nepal RK (2012)

Appendix 1.6.2. Pension system

Appendix Table 12. Indian and Nepalese pension system comparison by key characteristics

Nepal	India
The Pension system	
Provident fund and social assistance system. Government employees receive an additional noncontributory monthly pension.	Provident fund with survivor (deposit- linked) insurance and Pension fund; gratuity schemes for industrial workers; and social assistance system.

Coverage	
Provident fund: All government employees. Voluntary coverage for firms with 10 or more employees. *Exclusions*: Self-employed persons, temporary workers, part-time workers, and household workers. **Social assistance:** Nepalese citizens.	**Provident fund:** All engaged in casual, part-time, daily wage, and contract work, with monthly earnings of 6,500 rupees or less working in firms with at least 20 workers of covered industry employees, including cooperatives with more than 50 employees.Voluntary coverage for employees of covered firms with monthly earnings of more than 6,500 rupees, with the employer's agreement. ***Exclusions**:* Self-employed persons, agricultural workers, and members of cooperatives with fewer than 50 workers. **Social assistance:** Alone older persons and poor households.
Source of Funds	
Provident fund: Insured person: 10% of monthly earnings. Employer: 10% of monthly payroll. (Employers may make additional voluntary contributions for employees.)	**1) Insured person - Provident fund:** 12% of basic wages (10% in specified categories of industry. The maximum monthly earnings used to calculate contributions are 6,500 rupees. **2) Employer- Provident fund:** 3.67% of monthly payroll plus 1.1% of monthly payroll for administrative costs, max Rs 6,500. **3) Government- Pension scheme:** 1.17% of the insured's basic wages. The max monthly earnings contributions are Rs 6,500.
Qualifying Conditions	
Old-age benefit (provident fund): Age 58. The benefit may be deferred until age 60. **Old-age allowance (social assistance):** Age 70 or older (age 60 or older for Dalits and residents of Karnali Zone). **Personal accident insurance (provident fund):** Paid for the partial or permanent disability or accidental death of the fund member. **Disability pension (social assistance):** Age 16 or older and assessed as blind or having lost the use of feet or hands. **Survivor benefit (provident fund):** Paid when a fund member dies. **Funeral grant (provident fund):** Paid when a fund member dies. **Survivor allowance (social assistance):** Paid to Nepalese widows aged 60 or older who satisfy a means test.	**1) Old-age benefits - Provident fund:** Age 55. **Drawdown payment:** Under certain circumstances, the full amount can be drawn down before age 55. **Old-age pension (social assistance):** Needy persons age min 65. **2) Disability benefits- Provident fund:** Must be assessed with a permanent and total incapacity for normal work. **Pension scheme:** Must be assessed with a permanent and total disability as the result of an occupational injury. **Gratuity scheme:** Must be assessed with a disability caused by a disease or an accident. **Social assistance:** Aged 16 to 64, needy, and with severe or multiple disabilities. **3) Survivor benefits- Provident fund:** Paid if the provident fund member dies before retirement. **Survivor (deposit-linked) insurance scheme:** Paid if the provident fund member dies before retirement. **Pension scheme:** Paid to a widow and up to two children younger than 25. Pension ceases on remarriage. **Survivor grant (social assistance):** Paid to needy households when the primary breadwinner aged 18 to 64 dies.
Benefits	
1) Old-age benefit (provident fund): A lump sum of employer and employee contributions plus 8% interest a year is paid. **Interest rate adjustment:** The Board of Directors of the Provident Fund sets the interest rate based on fund's annual income. **Old-age allowance (social assistance**): 500 rupees a month is paid; 1,000 rupees a month for members of the Rautes ethnic group.	**1) Old-age benefits - Provident fund:** A lump sum of total employee and employer contributions plus interest is paid. **Early pension:** The basic pension is reduced by 3% for each year that retirement is taken before age 58. **Pension adjustment:** The pension is adjusted annually by the central government according to an actuarial evaluation. **Old-age pension (social assistance):** A basic pension of 200 rupees a month is paid. Additional amounts vary by state. **2) Disability benefits - Provident fund:** A lump sum of total

2) Disability Benefits - provident fund: A lump sum of Rs 100,000 is paid for disability. **Partial disability:** A lump sum of 10,000 rupees to 25,000 rupees is paid according to the assessed degree of disability. **Disability pension (social assistance):** 500 rupees a month is paid.	employee and employer contributions plus interest is paid. **Pension scheme:** A monthly pension is paid based on the member's pensionable earnings or a lump sum of total employee and employer contributions plus interest. The minimum earnings used to calculate pensions is 250 rupees. **Social assistance (disability):** A basic pension of Rs 200 a month is paid. Amounts in addition to the basic pension vary by state.
3) Survivor benefit (provident fund): A lump sum of 150,000 rupees is. **Survivor allowance (social assistance):** 500 rupees a month is paid.	**3) Survivor benefits - Provident fund:** A lump sum of total employee and employer contributions plus interest is paid. **Survivor (deposit-linked) insurance scheme:** A lump sum is paid of the average balance of the deceased's provident fund account during the 12 months before death or during the period of membership, whichever is less. The max benefit is Rs 60,000.

Source: ISSA (2013)